SERVICE MANUAL

FISHER

MT-890

Random Access
Linear Tracking Turntable

(EUROPE)

134 094 40

WM-16943

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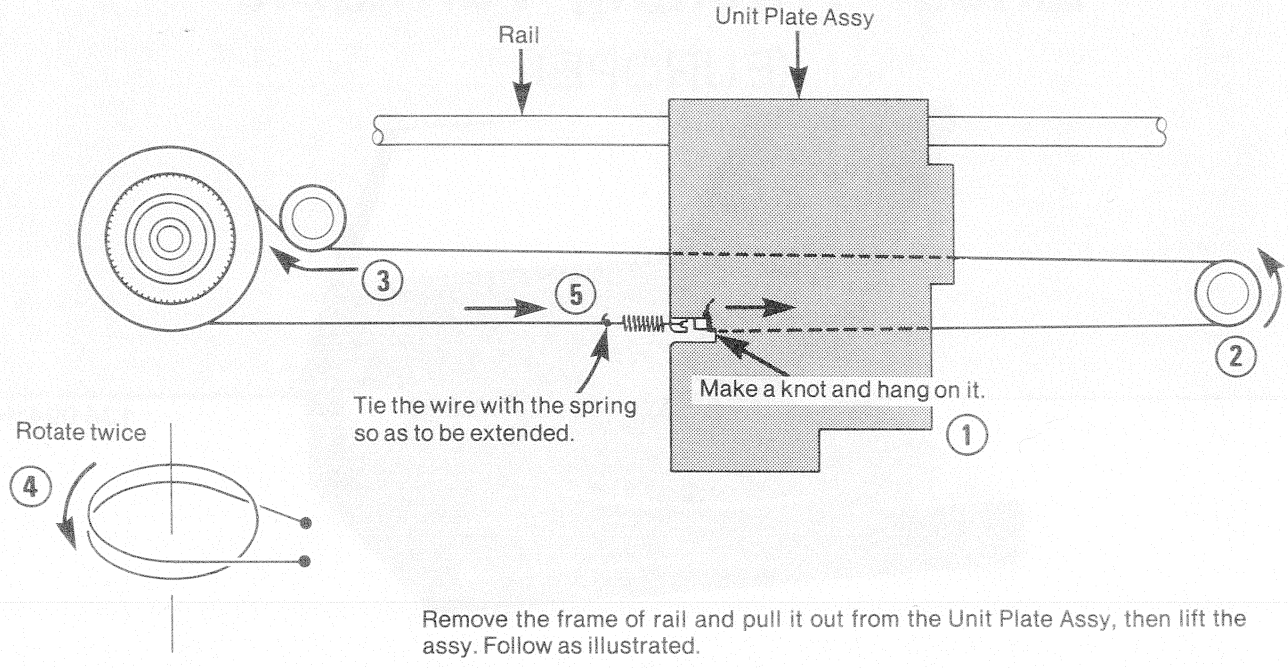
ARM FEED CORD STRINGING



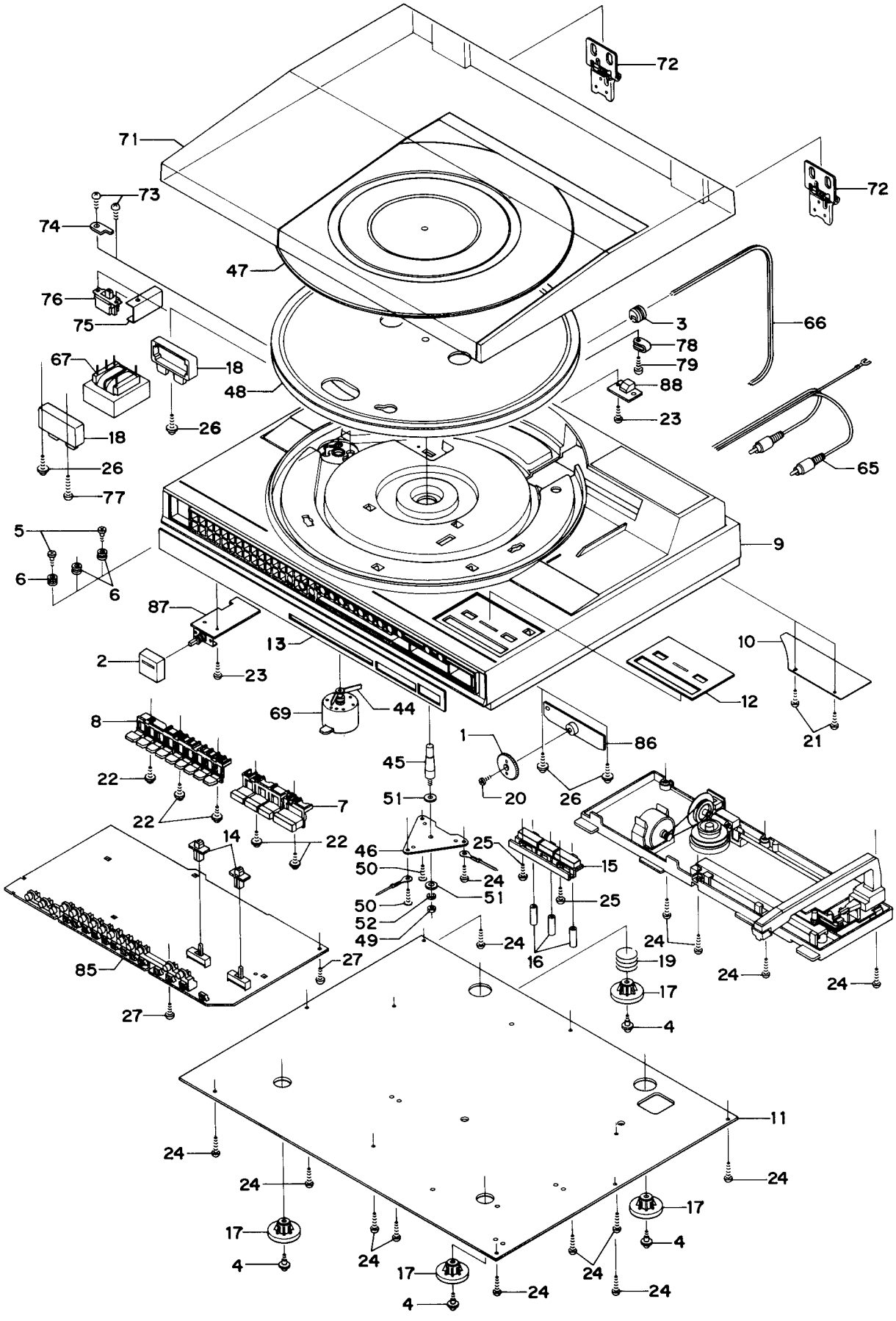
Remove the frame of rail and pull it out from the Unit Plate Assy, then lift the assy. Follow as illustrated.

SPECIFICATIONS

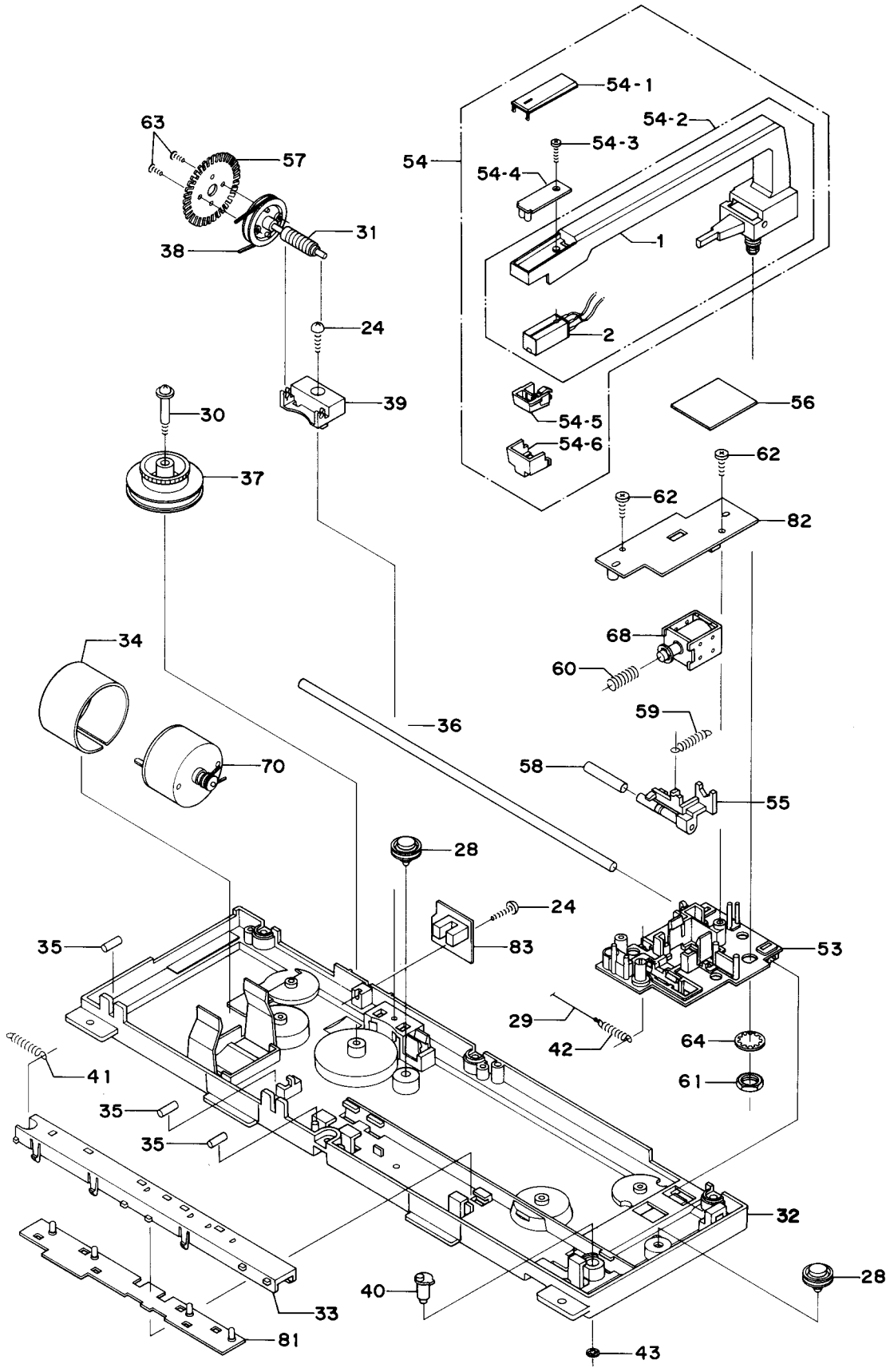
TURNTABLE		MT-890
Motor		DC Servo
Drive System		Belt
Wow and Flutter (WRMS)		0.035 %
Rumble (DIN 45539B)		−70 dB
Speed Variation		±1.5 %
Platter Diameter		300 mm
Platter Weight		0.4 kg
Record Speed Selector		33-1/3 rpm / 45 rpm
Automatic Functions		
	Start	Yes
	Stop	Yes
	Reject	Yes
	Repeat	Yes
Automatic Tonearm Return at End of Record		Yes
Manual Functions		
	Start	Yes
	Stop	Yes
Tonearm Data		
	Resonance	< 18 Hz
	Effective Length	130 mm
	Shape	Straight
Max. Tracking Error		±0.2°
Cueing		Viscous Damped
GENERAL		
Power Requirements		AC 110 / 220 V 50 Hz
Power Consumption		15 Watts
Dimensions (W x H x D)		440 x 97 x 360 mm
Weight (approx.)		3.8kg

Because its products are subject to continuous improvement, Fisher Corporation reserves the right to modify product designs and specifications without notice and without incurring any obligation.

CABINET & CHASSIS EXPLODED VIEW



CABINET & CHASSIS EXPLODED VIEW (Continued)



CABINET & CHASSIS PARTS LIST

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual.
Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

Ref. No.	Part No.	Description	Q'ty
	PACKAGE		
	131-6-3069-17050	Patching Sheet	2
	131-6-9439-00400	Ribbon (Belt)	2
	134-2-2104-12700	Screw Transit	1
	141-6-1139-98321	Box Corrugate-exp	1
	141-6-2519-19490	Bag Polyethylene-exp	1
	141-6-2519-20990	Bag Polyethylene-exp	1
	141-6-3119-23401	Pad	1
	141-6-3119-24900	Pad Front	1
	141-6-3119-25000	Pad Rear	1
	141-6-3119-25100	Pad Pick-up	1
	141-6-3119-32200	Pad	1
	141-6-3119-33200	Pad (Front)	1
	141-6-3319-13200	Spacer	3
	141-6-4159-00639	Notes	1
	141-6-4559-04035	Serial No. Sheet	2
	ACCESSORIES		
	4-2359-78767	Connector 5P Assy	1
	131-6-2719-10401	Bag Fan	1
	134-2-2901-11601	Adapter EP	1
	142-6-4119-32944	Explanatory Booklet	1
	CABINET		
	4-2359-78675	Connector 3P Assy [CN8]	1
	4-2359-79375	Connector 4P Assy [CN7]	1
	4-2359-79423	Connector 1P Assy	1
	4-2439-72890	Wire 2 Parallel (M2)	1
	131-2-1310-34662	Name Plate	1
	131-2-3608-14100	Cramp Wire	3
	131-2-7103-46801	Label	1
	141-2-4419-24600	Cloth (Cabinet Top)	1
	141-2-4459-40400	Cushion (Mechanism Plate Bottom)	1
	141-2-4459-40800	Cushion (Cover)	1
	141-2-4459-41200	Cushion (Control P.C.B.)	1
	141-6-3119-32300	Pad (Plate Turntable)	1
	141-6-4559-04035	Serial No. Sheet	1
	141-6-4729-37686	Stylus Label	1
	141-6-4729-37695	Label	1
1	131-2-1601-59501	Knob	1
2	131-2-1601-85207	Knob Power	1
3	131-2-6111-22900	Bushing	1
4	134-2-4201-13400	Screw	4
5	134-2-4201-13600	Screw	2
6	134-2-5202-11800	Rubber Cushion	3
7	141-0-1619-36300	Knob Assy	1
8	141-0-1619-36400	Knob Assy	1
9	141-2-1129-43000	Cabinet	1
10	141-2-1149-51900	Cover	1
11	141-2-1259-10200	Plate Bottom	1
12	141-2-1449-72900	Plate Control	1
13	141-2-1449-73100	Plate Control	1
14	141-2-1649-38800	Knob	2
15	141-2-1659-35701	Knob	1
16	141-2-3519-79400	Spacer	3
17	141-2-4459-36500	Cushion	4
18	141-2-4459-34400	Cushion	2
19	141-2-8559-06505	Spring Mounting	1
20	131-2-4201-24600	Screw	1
21	131-2-4201-20801	Screw, +M2.6x8	2
22	131-2-4201-25200	Screw; Bind Hd. Tapping-B, +M3.0x6	5
23	131-2-4201-19501	Screw	2
24	131-2-4201-19503	Screw	17
25	131-2-4201-23702	Screw	2
26	131-2-4201-28202	Screw	4
27	131-2-4201-25201	Screw, Bind Hd. Tapping, +M3.0x8	2
28	131-0-3020-11000	Pulley Assy	2
29	131-2-4112-10200	Rope	1
30	134-2-4106-27002	Shaft	1
31	141-0-5519-10301	Worm Assy	1
32	141-2-1259-09300	Plate Bottom (Mechanism)	1
33	141-2-3169-30000	Guide Frame	1
34	141-2-4459-39500	Cushion	1
35	141-2-4459-40100	Cushion	3
36	141-2-5289-01700	Rail	1
37	141-2-5519-65000	Worm Wheel(D)	1
38	141-2-5649-25000	Belt	1
39	141-2-5739-07600	Support Shaft	1
40	141-2-7519-75700	Cam	1
41	141-2-8519-01800	Spring Rewind Roller	1
42	141-2-8549-37600	Spring	1
43	131-2-4220-10507	Ring Snap	1
44	134-2-6302-11601	Belt	1
45	141-0-7519-05000	Shaft Turntable Complete	1
46	141-2-3519-80000	Plate Shaft Turntable	1
47	141-2-4429-00100	Mat Turntable	1
48	141-2-5229-00200	Turntable	1
49	106-3-1304-00011	Hex. Nut-3, M4.0	1
50	131-2-4201-23703	Screw	2
51	141-2-4569-09900	Washer	2
52	110-3-2104-00011	Spring Washer-2, M4.0	1
53	141-0-3129-02500	Unit Plate Assy	1
54	141-0-6419-02400	Pick-up Assy	1
54-1	141-2-3519-82100	Cover	1
54-2	141-0-6419-02500	Tone Arm Assy	1
1	141-2-6419-00500	Tone Arm	1
2	4-1579-70190	Cartridge (MG-103S)	1
54-3	101-3-1702-00611	Screw, Bind Hd., +M2.0x6	1
54-4	141-0-1939-16950	P.C.B. Assy	1
54-5	4-1579-70200	Stylus (ST-103SD)	1
54-6	141-2-6459-00600	Retainer Needle	1
55	141-0-7439-19400	Lifter Arm Assy	1
56	141-2-1149-50700	Cover Plate	1
57	141-2-3519-75000	Plate	1

CABINET & CHASSIS PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
58	141-2-5729-22700	Boss	1
59	141-2-8549-32600	Spring	1
60	141-2-8559-14700	Spring	1
61	131-2-4202-11600	Nut	1
62	143-3-1703-00811	Screw, Bind Hd. Tapping-B, +M3.0x8	2
63	141-2-4219-40600	Screw	2
64	141-2-4569-04300	Washer	1
65	⚠ 4-2369-75370	Plug Cord RCA	1
66	⚠ 4-2432-00502	Power Cord	1
67	⚠ 4-2512-30521	Power Trans [T1]	1
68	4-2649-70790	Solenoid [SL1]	1
69	134-0-5011-04200	Motor Assy (Phono) [M1]	1
70	134-0-5011-04300	Motor Assy (Arm) [M2]	1
71	141-0-1249-30600	Lid Assy	1
72	141-0-2519-00902	Hinge Assy	2
73	131-2-4201-20300	Screw	2
74	131-2-7104-00101	Plate Pad Switch	1
75	131-2-6107-31600	Plate Sever	1
76	⚠ 4-2312-01020	Switch Slide (Voltage Select)	1
77	143-3-1304-02511	Screw, Pan Hd. Tapping-B, +M4.0x25	1
78	131-2-3608-12404	Cramp Wire	1
79	131-2-4201-25205	Screw	1
81	141-0-1939-15391	LED P.C.B. Assy	1
82	141-0-1939-15401	Sensor P.C.B. Assy	1
83	141-0-1939-15411	Pulse P.C.B. Assy	1
85	141-0-1939-14691	Control P.C.B. Assy	1
86	141-0-1939-14700	Volume P.C.B. Assy	1
87	141-0-1939-14710	Power Switch P.C.B. Assy	1
88	141-0-1939-14720	Remote Control P.C.B. Assy	1

NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

TURNTABLE ADJUSTMENTS

BEFORE ATTEMPTING ADJUSTMENT

1. Adjustments through the rear of the cabinet should be carried out from the bottom with the cabinet placed firmly on a level base.
2. Carry out adjustment procedures in the order given here.

MEASURING INSTRUMENTS REQUIRED

- Stroboscope Sheet
- Standard reflective plate
- DC VTVM (DC voltmeter with high impedance)
- Screw driver

STYLUS HEIGHT ADJUSTMENT

1. Remove the turntable mat and belt and turn the power on.
2. Press the ◁ button and move the tone arm so that the stylus height adjustment screw can be seen in the turntable aperture (see Fig.1).
3. Turn the adjustment screw so that the stylus height is 7.5mm from the turntable (it is best to use some instrument like that depicted in Fig.2).

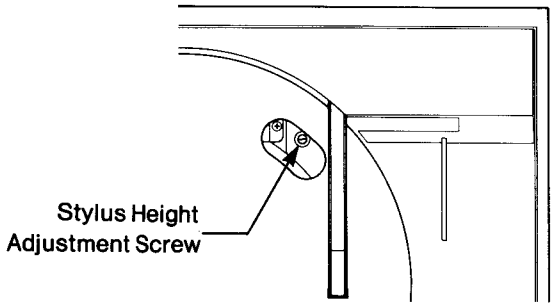


Fig.1

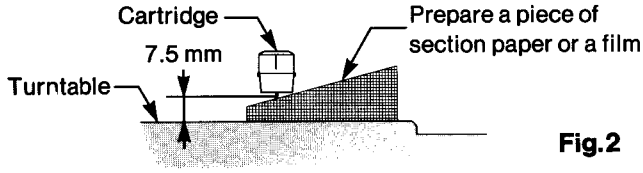


Fig.2

ROTATION ADJUSTMENT

1. Replace the belt and turntable mat and set the SPEED switch to 45 rpm.
2. Using a stroboscope sheet, adjust VR5 on the Control PCB so that the rotation matches up (see Fig.3).
3. Set the SPEED switch to 33 rpm and carry out the same procedure with VR6.

NOTE:
Always carry out this adjustment by adjusting the 45 rpm speed first.

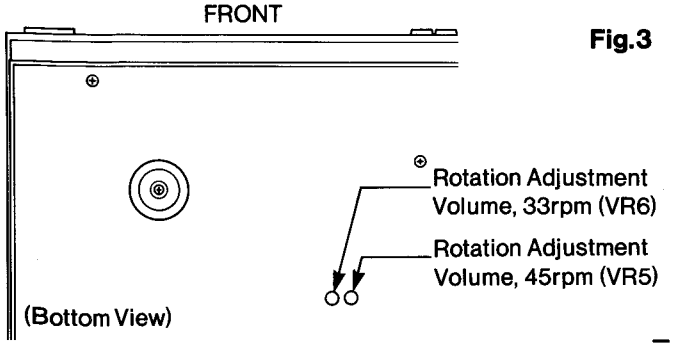


Fig.3

ARM FEED PHOTOINTERRUPTER SENSITIVITY ADJUSTMENT

1. Place a minimally de-centered record disk on the turntable and play.
2. When the turntable has completed at least 5 revolutions after the needle has dropped onto the record, press the CUEING button, lifting the tone arm.
3. At this point, adjust VR4 on the Control PCB so that the arm rises straight up (see Fig.4).

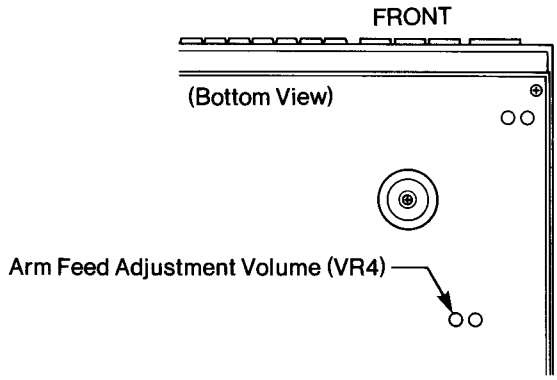


Fig.4

TRACK SENSOR SENSITIVITY ADJUSTMENT

1. Remove the unit's rear cover.
2. Expose the lead cord from the Control PCB adjustment plug's (CN4) 1 pin ~ 3 pin Then connect a voltmeter (DC VTVM) to the 1 pin (TP1) and 3 pin (GND). (Refer to the diagram of adjustment points.)
3. Remove the turntable belt and lift the turntable mat.
4. Place the standard reflective plate halfway between the turntable shaft and the edge of the turntable.
5. Turn the power on. After 15 seconds, maneuver the track sensor of the tone arm into position over the standard reflective plate using the ◁ button.
6. Press the CUEING button and set the tone arm.
7. At this point, adjust VR1 on the Control PCB so that the voltmeter reads 3.5V. (In the event that you are unable to make this adjustment, remove the 27 kΩ R22 PCB pattern connected to the IC4 13 pin and then carry out adjustment).
8. Press the CUEING button and lift the tone arm.
9. To adjust the voltage, reconnect the voltmeter to the lead cord of the adjustment plug's 2 pin (TP2) and 3 pin (GND).
10. Adjust VR2 on the Control PCB so that the voltmeter reads 4.0 V.

NOTE:

- Begin by adjustment placing the tone arm on the surface of the standard reflective plate.
- Because the track sensor makes use of infrared light rays, avoid carrying out this adjustment in the vicinity of other infrared light ray sources, such as solar rays and incandescent lights. (Fluorescent lights do not affect this adjustment.

TURNTABLE ADJUSTMENTS (Continued)

LEAD-IN ADJUSTMENT

1. Place a record on the turntable and press the PLAY/STOP button to begin lead-in.
2. Turn the adjustment cam so that lead-in attains the proper position (see Fig.5). (Rotating the cam clockwise moves the lead-in in toward the center, while rotating it counter-clockwise moves it out towards the edge.)

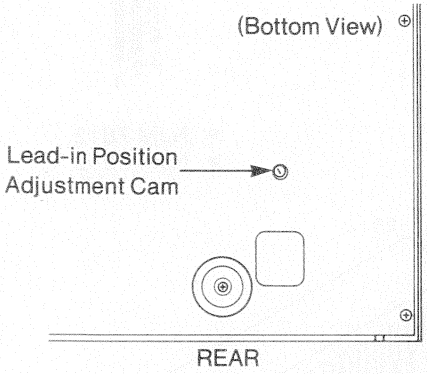


Fig.5

APPROACH ADJUSTMENT

1. Set the Approach control to the center click position.
2. Place a record containing several selections on the turntable.
3. Select the second and the last program by the PROGRAM button. Then make sure that the entire selection is being played, with neither the beginning nor the end of the selection being cut off.
4. In the event that either the beginning or the end of the selection is being cut off, adjust VR3 on the Control PCB (see Fig.6).

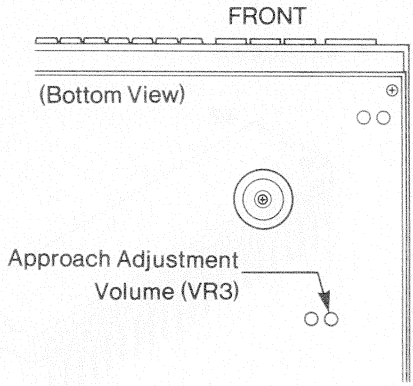
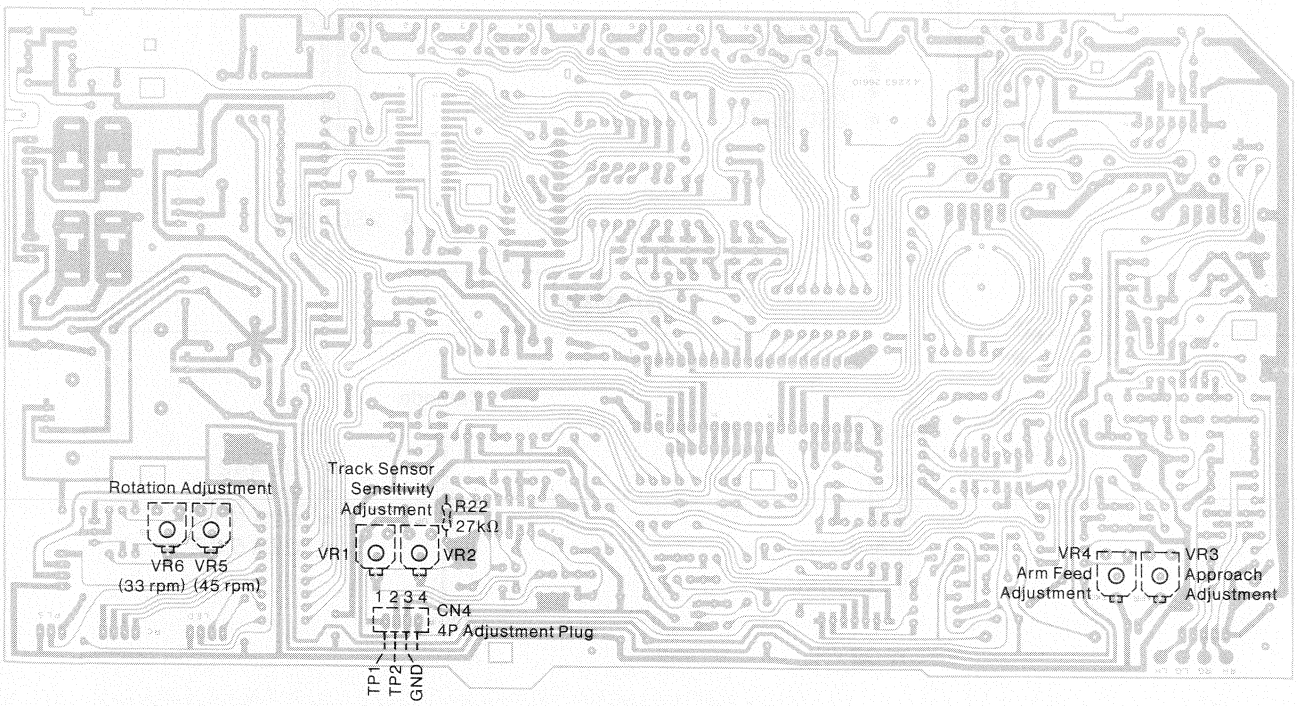


Fig.6

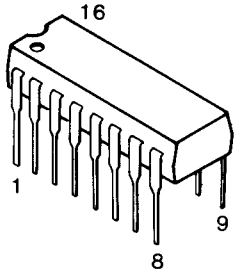
CONTROL P.C.BOARD ADJUSTMENT POINTS

(BOTTOM VIEW)

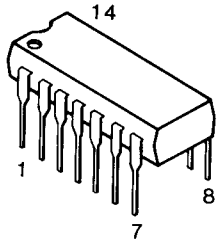


SEMICONDUCTOR LEAD IDENTIFICATION

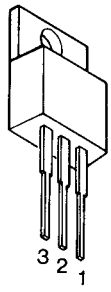
INTEGRATED CIRCUITS



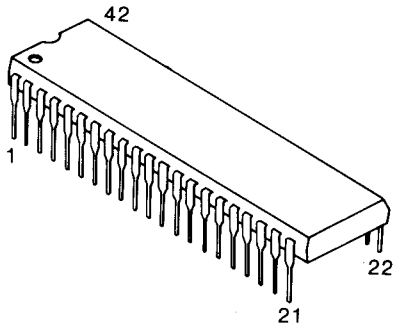
- MN 4049 B



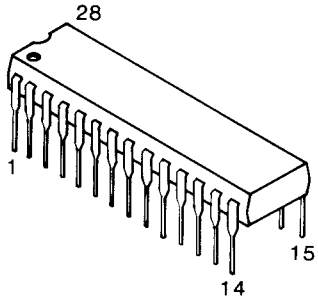
- LC 4011 B
- LA 6324



- NJM 7812
- NJM 7912

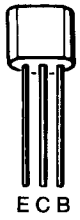


- LM 6402 G - 1895

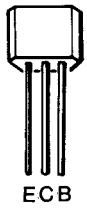


- TMP 4270 N 1

BI-POLAR TRANSISTORS

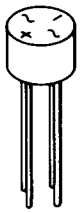


- 2SA 608
- 2SA 984
- 2SC 536
- 2SC 2274

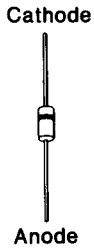


- 2SD 1012

DIODES



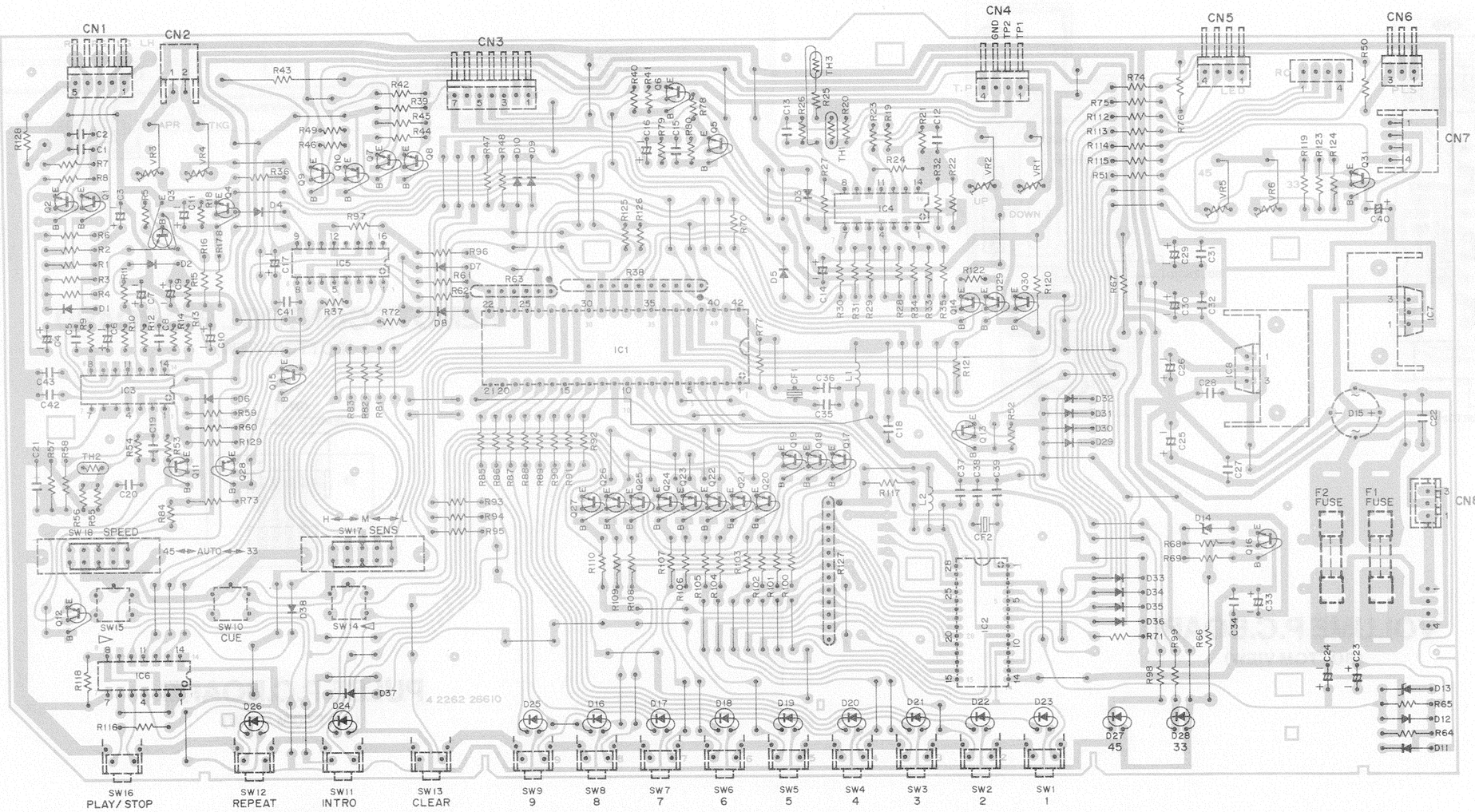
- W 02



- DS 442
- DSF 10 C
- GZA 5.1 Z
- GZA 5.6 Z

CONTROL P.C.BOARD

(BOTTOM VIEW)



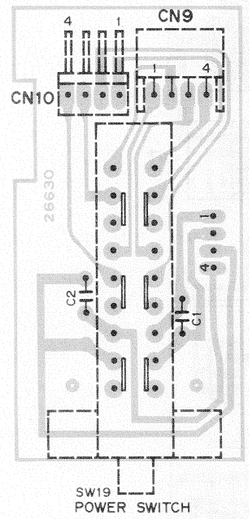
IC PIN NUMBERS DC VOLTAGES

SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC1	LM6402G	2.1V	4.5V	4.5V	4.5V	4.5V	5.2V	4.6V	5.1V	5.1V	5.1V	5.1V	10.6V	10.6V	10.6V	10.6V	10.6V	10.6V	10.6V	10.6V	0V
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
		0V	11.4V	11.4V	11.9V	11.9V	11.9V	10.4V	10.6V	10.6V	9.3V	11.8V	11.8V	11.9V	11.3V	0.1V	0V	9.3V	6.3V	10.6V	0.1V
		41	42																		
		5.2V	2.7V																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC2	TMP4270	1.6V	1.6V	4.6V	5.2V	5.2V	5.2V	0V	5.2V	5.2V	5.2V	5.2V	0V	–	0V	–	5.2V	5.2V	5.2V	5.2V	5.2V
		21	22	23	24	25	26	27	28												
		5.2V	5.2V	5.2V	–	–	–	–	5.2V												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC3	LA6324	–0.7V	0V	0V	11.9V	0V	0V	–	7.7V	7.7V	7.7V	–12.2V	4.7V	4.7V	4.8V						
IC5	MN4049B	11.9V	0V	11.4V	0V	11.4V	0V	11.4V	0V	0V	11.9V	11.9V	0.2V	–	0.2V	11.8V	–				
IC6	LC4011B	11.9V	11.9V	0V	11.9V	0V	11.9V	0V	0V	0V	11.9V	0V	11.8V	11.8V	11.9V						
IC7	NJM7812	11.9V	0V	15.8V																	
IC8	NJM7912	–12.2V	–17.5V	0V																	

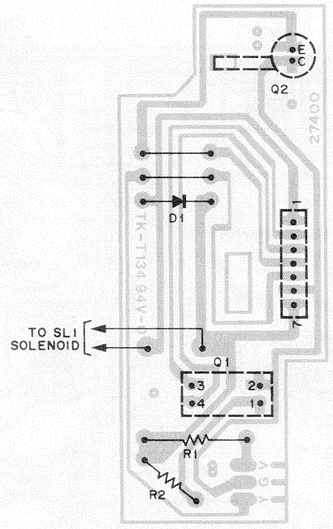
TRANSISTOR DC VOLTAGES

SYMBOL No.	DEVICE	B	C	E	SYMBOL No.	DEVICE	B	C	E	SYMBOL No.	DEVICE	B	C	E
Q4	2SC536	0V	11.9V	0V	Q15	2SC536	0.6V	0V	0V	Q24	2SA608	5.2V	4.5V	5.1V
Q5	2SC536	–0.8V	11.9V	–1.5V	Q16	2SC2274	5.8V	9.4V	5.2V	Q25	2SA608	5.2V	4.5V	5.1V
Q7	2SC2274	–12.2V	0V	–12.2V	Q17	2SA608	5.2V	4.5V	5.1V	Q26	2SA608	5.2V	4.5V	5.1V
Q8	2SA608	11.8V	0V	11.9V	Q18	2SA608	5.2V	4.5V	5.1V	Q27	2SA608	5.2V	4.5V	5.1V
Q9	2SC2274	–12.2V	0V	–12.2V	Q19	2SA608	5.2V	4.5V	5.1V	Q28	2SC536	0V	5.2V	0V
Q10	2SA608	11.8V	11.9V	–12.2V	Q20	2SA608	5.2V	4.5V	5.1V	Q29	2SC536	0.7V	0V	0V
Q11	2SC2274	–0.6V	11.9V	0	Q21	2SA608	5.2V	4.5V	5.1V	Q30	2SC2274	0V	11.9V	0.9V
Q12	2SA984	–0.6V	–12.2V	0V	Q22	2SA608	5.2V	4.5V	5.1V	Q31	2SC536	1.9V	1.3V	1.3V
Q14	2SC536	0.6V	0V	0V	Q23	2SA608	5.2V	4.5V	5.1V					

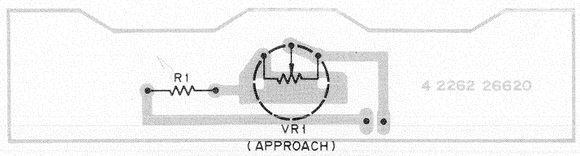
SENSOR P.C.BOARD
(BOTTOM VIEW)



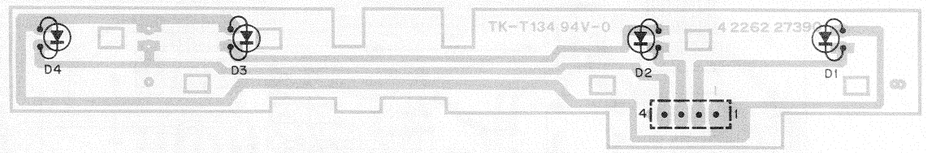
POWER SWITCH P.C.BOARD
(BOTTOM VIEW)



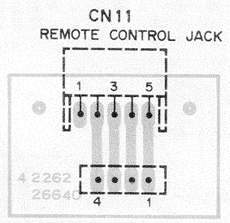
VOLUME P.C.BOARD
(BOTTOM VIEW)



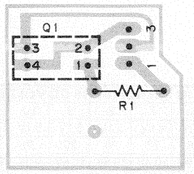
LED P.C.BOARD
(BOTTOM VIEW)



REMOTE CONTROL P.C.BOARD
(BOTTOM VIEW)



PULSE P.C.BOARD
(BOTTOM VIEW)



P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description				Q'ty
	LED P.C.B. ASSY					
81	141-0-1939-15391	LED P.C.B. Assy				1
CN5	4-2359-79373	Connector 4P Assy				1
D1	4-2029-75040	LED, SLR 34 VC 3				1
D2	4-2029-75040	LED, SLR 34 VC 3				1
D3	4-2029-75040	LED, SLR 34 VC 3				1
D4	4-2029-75040	LED, SLR 34 VC 3				1
	SENSOR P.C.B. ASSY					
82	141-0-1939-15401	Sensor P.C.B. Assy				1
	141-2-3519-76200	Spacer				1
CN3	4-2359-79023	Connector 7P Assy				1
D1	212-5-4390-13510	Diode, DS 135				1
Q1	4-2039-72580	Photo Interrupter				1
Q2	4-2039-72570	Photo Transistor, TPS-613				1
R1	401 056 3609	Oxide Metal Film	470Ω	1/2W	±5%	1
R2	401 021 1906	Carbon	560Ω	1/4W	±5%	1
	PULSE P.C.B. ASSY					
83	141-0-1939-15411	Pulse P.C.B. Assy				1
CN6	4-2359-79337	Connector 3P Assy				1
Q1	4-2039-71430	Photo Interrupter				1
R1	401 021 1906	Carbon	560Ω	1/4W	±5%	1
	CONTROL P.C.B. ASSY					
85	141-0-1939-14691	Control P.C.B. Assy				1
	⚠ 4-2352-01940	Fuse Clip				4
	4-2359-78508	Connector 1P Assy				1
	101-3-1303-00611	Screw, Pan Hd., +M3.0x6				2
	131-2-6201-35500	Plate Heat Sink (for IC7, IC8)				2
	141-2-3519-79300	LED Spacer				1
	131-2-9800-01028	Jumper				1
CN1	4-2369-22740	Plug 5P				1
CN2	4-2369-73672	Plug 2P				1
CN3	4-2369-22750	Plug 7P				1
CN4	4-2369-22780	Plug 4P				1
CN5	4-2369-22780	Plug 4P				1
CN6	4-2362-00040	Plug 3P				1
CN7	4-2369-73673	Plug 4P				1
CN8	4-2369-73130	Connector 3P				1
CN9	4-2359-79376	Connector 4P Assy				1
F1	⚠ 4-2349-20400	Fuse (T630mA)				1
F2	⚠ 4-2349-20400	Fuse (T630mA)				1
SW1	4-2319-75790	Touch Switch (1)				1
SW2	4-2319-75790	Touch Switch (2)				1
SW3	4-2319-75790	Touch Switch (3)				1
SW4	4-2319-75790	Touch Switch (4)				1
SW5	4-2319-75790	Touch Switch (5)				1
SW6	4-2319-75790	Touch Switch (6)				1
SW7	4-2319-75790	Touch Switch (7)				1
SW8	4-2319-75790	Touch Switch (8)				1
SW9	4-2319-75790	Touch Switch (9)				1
SW10	4-2312-05801	Key Board Switch (CUE)				1
SW11	4-2319-75790	Touch Switch (Intro)				1
SW12	4-2319-75790	Touch Switch (Repeat)				1
SW13	4-2319-75790	Touch Switch (Clear)				1
SW14	4-2312-05801	Key Board Switch (◁)				1
SW15	4-2312-05801	Key Board Switch (▷)				1
SW16	4-2319-75790	Touch Switch (Play/Stop)				1
SW17	4-2319-78290	Switch Slide (Sens)				1
SW18	4-2319-78290	Switch Slide (Speed)				1

Ref. No.	Part No.	Description	Q'ty
L1	4-2532-00540	Choke Coil (47μH)	1
L2	4-2532-00540	Choke Coil (47μH)	1
CF1	4-2259-70780	CSB 800K	1
CF2	4-2279-70110	Ceramic OSC 2MHz	1
VR1	4-2222-01020	Semi Fixed Volume (B-200kΩ)	1
VR2	4-2222-01010	Semi-fixed Volume (B-50kΩ)	1
VR3	4-2222-01010	Semi-fixed Volume (B-50kΩ)	1
VR4	4-2222-01040	Semi Fixed Volume (B-20kΩ)	1
VR5	4-2222-01400	Potentiometer (B-10kΩ)	1
VR6	4-2222-01040	Semi Fixed Volume (B-20kΩ)	1
TH1	204-5-9000-05000	Thermistor, SDT 500	1
TH2	204-5-9000-05000	Thermistor, SDT 500	1
TH3	204-5-9000-05000	Thermistor, SDT 500	1
D1	202-5-2810-44210	Diode, DS 442	1
D2	202-5-2810-44210	Diode, DS 442	1
D3	202-5-2810-44210	Diode, DS 442	1
D4	202-5-2810-44210	Diode, DS 442	1
D5	202-5-2810-44210	Diode, DS 442	1
D6	202-5-2810-44210	Diode, DS 442	1
D7	202-5-2810-44210	Diode, DS 442	1
D8	202-5-2810-44210	Diode, DS 442	1
D9	202-5-2810-44210	Diode, DS 442	1
D10	202-5-2810-44210	Diode, DS 442	1
D11	202-5-0220-01010	Diode, DSF 10	1
D12	202-5-2810-44210	Diode, DS 442	1
D13	202-5-3210-05113	Zener Diode, GZA5.1Z	1
D14	202-5-3210-05613	Zener Diode, GZA5.6Z	1
D15	DGG---W02------	Diode, W 02	1
D16	4-2029-75030	LED, SLP 960 C (8)	1
D17	4-2029-75030	LED, SLP 960 C (7)	1
D18	4-2029-75030	LED, SLP 960 C (6)	1
D19	4-2029-75030	LED, SLP 960 C (5)	1
D20	4-2029-75030	LED, SLP 960 C (4)	1
D21	4-2029-75030	LED, SLP 960 C (3)	1
D22	4-2029-75030	LED, SLP 960 C (2)	1
D23	4-2029-75030	LED, SLP 960 C (1)	1
D24	4-2029-75030	LED, SLP 960 C (Intro)	1
D25	4-2029-75030	LED, SLP 960 C (9)	1
D26	4-2029-75020	LED, SLP 260 CU (Repeat)	1
D27	4-2029-75030	LED, SLP 960 C (45)	1
D28	4-2029-75030	LED, SLP 960 C (33)	1
D29	202-5-2810-44210	Diode, DS 442	1
D30	202-5-2810-44210	Diode, DS 442	1
D31	202-5-2810-44210	Diode, DS 442	1
D32	202-5-2810-44210	Diode, DS 442	1
D33	202-5-2810-44210	Diode, DS 442	1
D34	202-5-2810-44210	Diode, DS 442	1
D35	202-5-2810-44210	Diode, DS 442	1
D36	202-5-2810-44210	Diode, DS 442	1
D37	202-5-2810-44210	Diode, DS 442	1
D38	202-5-2810-44210	Diode, DS 442	1
IC1	217-5-1176-40218	IC, LM6402G-1895	1
IC2	4-2069-75230	IC, TMP 4270N 1	1
IC3	206-5-1296-32410	IC, LA 6324	1
IC4	206-5-1296-32410	IC, LA 6324	1
* IC5	4-2069-75300	IC, MN 4049 B	1
or	4-2069-72530	IC, MSM 4049 RS	1
IC6	206-5-9504-01110	IC, LC 4011 B	1
IC7	4-2069-72560	IC, NJM 7812	1
IC8	4-2069-72570	IC, NJM 7912	1
Q1	203-5-4921-01280	Transistor, 2SD 1012	1
Q2	203-5-4921-01280	Transistor, 2SD 1012	1
Q3	203-5-5000-53670	Transistor, 2SC 536	1
Q4	203-5-5000-53670	Transistor, 2SC 536	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description				Q'ty
Q5	203-5-5000-53670	Transistor, 2SC 536				1
Q6	203-5-5000-53670	Transistor, 2SC 536				1
Q7	203-5-7252-27460	Transistor, 2SC 2274				1
Q8	203-5-7230-60860	Transistor, 2SA 608				1
Q9	203-5-7252-27460	Transistor, 2SC 2274				1
Q10	203-5-7230-60860	Transistor, 2SA 608				1
Q11	203-5-7252-27460	Transistor, 2SC 2274				1
Q12	203-5-6820-98460	Transistor, 2SA 984				1
Q13	203-5-5000-53670	Transistor, 2SC 536				1
Q14	203-5-5000-53670	Transistor, 2SC 536				1
Q15	203-5-5000-53670	Transistor, 2SC 536				1
Q16	203-5-7252-27460	Transistor, 2SC 2274				1
Q17	203-5-7230-60860	Transistor, 2SA 608				1
Q18	203-5-7230-60860	Transistor, 2SA 608				1
Q19	203-5-7230-60860	Transistor, 2SA 608				1
Q20	203-5-7230-60860	Transistor, 2SA 608				1
Q21	203-5-7230-60860	Transistor, 2SA 608				1
Q22	203-5-7230-60860	Transistor, 2SA 608				1
Q23	203-5-7230-60860	Transistor, 2SA 608				1
Q24	203-5-7230-60860	Transistor, 2SA 608				1
Q25	203-5-7230-60860	Transistor, 2SA 608				1
Q26	203-5-7230-60860	Transistor, 2SA 608				1
Q27	203-5-7230-60860	Transistor, 2SA 608				1
Q28	203-5-5000-53670	Transistor, 2SC 536				1
Q29	203-5-5000-53670	Transistor, 2SC 536				1
Q30	203-5-7252-27460	Transistor, 2SC 2274				1
Q31	203-5-5000-53670	Transistor, 2SC 536				1
C1	CC1-0-3500-ZG00C	Ceramic	0.01μF	50V	+80,-20%	1
C2	CC1-0-3500-ZG00C	Ceramic	0.01μF	50V	+80,-20%	1
C3	CD4-7-6100-0001V	Electrolytic	47μF	10V		1
C4	CD2-2-5500-0001V	Electrolytic	2.2μF	50V		1
C5	CC1-0-1500-KD00C	Ceramic	100pF	50V	±10%	1
C6	CD2-2-5500-0001V	Electrolytic	2.2μF	50V		1
C7	CD1-0-6160-0001V	Electrolytic	10μF	16V		1
C8	CM1-0-3500-K00SV	Mylar	0.01μF	50V	±10%	1
C9	CD1-0-5500-0001V	Electrolytic	1μF	50V		1
C10	CD2-2-6160-0001V	Electrolytic	22μF	16V		1
C11	CD4-7-6100-0001V	Electrolytic	47μF	10V		1
C12	CM1-0-2500-K00SV	Mylar	0.001μF	50V	±10%	1
C13	CM1-0-2500-K00SV	Mylar	0.001μF	50V	±10%	1
C14	CD4-7-6100-0001V	Electrolytic	47μF	10V		1
C15	CM2-7-3500-K00SV	Mylar	0.027μF	50V	±10%	1
C16	CD4-7-5250-0001V	Electrolytic	4.7μF	25V		1
* C17	CD3-3-5500-KHS1V	Electrolytic	3.3μF	50V	±10%	1
C18	CI4-7-3250-KF00C	Boundary	0.047μF	25V	±10%	1
C19	CC3-3-1500-KD00C	Ceramic	330pF	50V	±10%	1
C20	CM1-0-2500-K00SV	Mylar	0.001μF	50V	±10%	1
C21	CI1-0-3250-MF00R	Boundary	0.01μF	25V	±20%	1
C22	CC1-0-3501-YEY0C	Ceramic	0.01μF	500V	+100,-0%	1
C23	CD4-7-5500-0001V	Electrolytic	4.7μF	50V		1
C24	CD1-0-6160-0001V	Electrolytic	10μF	16V		1
C25	4-2239-71360	Electrolytic		25V	1000μF	1
C26	CD4-7-7250-0006V	Electrolytic	470μF	25V		1
C27	CC1-0-3500-ZG00C	Ceramic	0.01μF	50V	+80,-20%	1
C28	CC1-0-3500-ZG00C	Ceramic	0.01μF	50V	+80,-20%	1
C29	CD1-0-7160-0006V	Electrolytic	100μF	16V		1
C30	CD1-0-7160-0006V	Electrolytic	100μF	16V		1
C31	CI4-7-3250-KF00C	Boundary	0.047μF	25V	±10%	1
C32	CI4-7-3250-KF00C	Boundary	0.047μF	25V	±10%	1
C33	CD4-7-6100-0001V	Electrolytic	47μF	10V		1
C34	CI4-7-3250-KF00C	Boundary	0.047μF	25V	±10%	1
C35	CC2-2-1500-KD00C	Ceramic	220pF	50V	±10%	1
C36	CC2-2-1500-KD00C	Ceramic	220pF	50V	±10%	1
C37	CI4-7-3250-KF00C	Boundary	0.047μF	25V	±10%	1

Ref. No.	Part No.	Description				Q'ty
C38	CC6-8-0500-KD00C	Ceramic	68pF	50V	±10%	1
C39	CC6-8-0500-KD00C	Ceramic	68pF	50V	±10%	1
C40	CD2-2-6160-0001V	Electrolytic	22μF	16V		1
C41	CC1-0-2500-KE00C	Ceramic	0.001μF	50V	±10%	1
C42	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V	+80,-20%	1
C43	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V	+80,-20%	1
R1	401 016 3809	Carbon	2.2kΩ	1/4W	±5%	1
R2	401 016 3809	Carbon	2.2kΩ	1/4W	±5%	1
R3	401 023 2802	Carbon	8.2kΩ	1/4W	±5%	1
R4	401 016 3809	Carbon	2.2kΩ	1/4W	±5%	1
R5	401 027 0309	Carbon	47kΩ	1/6W	±5%	1
R6	401 022 3107	Carbon	6.8kΩ	1/4W	±5%	1
R7	401 012 8105	Carbon	100kΩ	1/4W	±5%	1
R8	401 012 5708	Carbon	1kΩ	1/4W	±5%	1
R9	401 026 4902	Carbon	330kΩ	1/6W	±5%	1
R10	401 024 9701	Carbon	12kΩ	1/6W	±5%	1
R11	401 024 7707	Carbon	100kΩ	1/6W	±5%	1
R12	401 024 9305	Carbon	1.2kΩ	1/6W	±5%	1
R13	401 024 9305	Carbon	1.2kΩ	1/6W	±5%	1
R14	401 026 1604	Carbon	270kΩ	1/6W	±5%	1
R15	401 024 7707	Carbon	100kΩ	1/6W	±5%	1
R16	401 012 5708	Carbon	1kΩ	1/4W	±5%	1
R17	401 020 2904	Carbon	47kΩ	1/4W	±5%	1
R18	401 027 0309	Carbon	47kΩ	1/6W	±5%	1
R19	401 026 1307	Carbon	27kΩ	1/6W	±5%	1
R20	401 024 7004	Carbon	1kΩ	1/6W	±5%	1
R21	401 025 0004	Carbon	120kΩ	1/6W	±5%	1
R22	401 017 2801	Carbon	27kΩ	1/4W	±5%	1
R23	401 026 1307	Carbon	27kΩ	1/6W	±5%	1
R24	401 020 2904	Carbon	47kΩ	1/4W	±5%	1
R25	401 014 5201	Carbon	15kΩ	1/4W	±5%	1
R26	401 025 8703	Carbon	220kΩ	1/6W	±5%	1
R27	401 020 2904	Carbon	47kΩ	1/4W	±5%	1
R28	401 012 7009	Carbon	10kΩ	1/4W	±5%	1
R29	401 020 2003	Carbon	4.7kΩ	1/4W	±5%	1
R30	401 012 7009	Carbon	10kΩ	1/4W	±5%	1
R31	401 013 6407	Carbon	12kΩ	1/4W	±5%	1
R32	401 020 2904	Carbon	47kΩ	1/4W	±5%	1
R33	401 018 4903	Carbon	33kΩ	1/4W	±5%	1
R34	401 021 3009	Carbon	5.6kΩ	1/4W	±5%	1
R35	401 012 7009	Carbon	10kΩ	1/4W	±5%	1
R36	401 012 5708	Carbon	1kΩ	1/4W	±5%	1
R37	401 024 7004	Carbon	1kΩ	1/6W	±5%	1
R38	4-2219-71280	Resistor (10kΩ x 9)				1
R39	401 019 5800	Carbon	4.7Ω	1/4W	±5%	1
R40	401 024 7400	Carbon	10kΩ	1/6W	±5%	1
R41	401 027 0309	Carbon	47kΩ	1/6W	±5%	1
R42	401 016 3809	Carbon	2.2kΩ	1/4W	±5%	1
R43	401 068 7107	Oxide Metal Film	56Ω	2W	±5%	1
R44	401 021 3009	Carbon	5.6kΩ	1/4W	±5%	1
R45	401 012 7009	Carbon	10kΩ	1/4W	±5%	1
R46	401 027 2600	Carbon	5.6kΩ	1/6W	±5%	1
R47	401 021 3009	Carbon	5.6kΩ	1/4W	±5%	1
R48	401 021 3009	Carbon	5.6kΩ	1/4W	±5%	1
R49	401 024 7400	Carbon	10kΩ	1/6W	±5%	1
R50	401 019 5800	Carbon	4.7Ω	1/4W	±5%	1
R51	401 012 7009	Carbon	10kΩ	1/4W	±5%	1
R52	401 024 7400	Carbon	10kΩ	1/6W	±5%	1
R53	401 025 7805	Carbon	2.2kΩ	1/6W	±5%	1
R54	401 024 7004	Carbon	1kΩ	1/6W	±5%	1
R55	401 026 9600	Carbon	470Ω	1/6W	±5%	1
R56	401 026 9600	Carbon	470Ω	1/6W	±5%	1
R57	401 017 7608	Carbon	3.9Ω	1/4W	±5%	1
R58	401 014 4105	Carbon	1.5kΩ	1/4W	±5%	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description				Q'ty
R59	401 019 3004	Carbon	39kΩ	1/4W	±5%	1
R60	401 022 3107	Carbon	6.8kΩ	1/4W	±5%	1
R61	401 012 7009	Carbon	10kΩ	1/4W	±5%	1
R62	401 012 7009	Carbon	10kΩ	1/4W	±5%	1
R63	4-2219-70590	RM5-103J (10kΩ x 5)				1
R64	401 020 2003	Carbon	4.7kΩ	1/4W	±5%	1
R65	401 020 2904	Carbon	47kΩ	1/4W	±5%	1
R66	401 067 8402	Oxide Metal Film	39Ω	2W	±5%	1
R67	401 062 1408	Oxide Metal Film	470Ω	1W	±5%	1
R68	401 022 1905	Carbon	680Ω	1/4W	±5%	1
R69	401 016 2604	Carbon	220Ω	1/4W	±5%	1
R70	401 018 5801	Carbon	330kΩ	1/4W	±5%	1
R71	401 021 3009	Carbon	5.6kΩ	1/4W	±5%	1
R72	401 024 7707	Carbon	100kΩ	1/6W	±5%	1
R73	401 012 7009	Carbon	10kΩ	1/4W	±5%	1
R74	401 012 5708	Carbon	1kΩ	1/4W	±5%	1
R75	401 023 1706	Carbon	820Ω	1/4W	±5%	1
R76	401 012 5708	Carbon	1kΩ	1/4W	±5%	1
R77	401 012 9300	Carbon	1MΩ	1/4W	±5%	1
R78	401 027 5502	Carbon	6.8kΩ	1/6W	±5%	1
R79	401 024 9305	Carbon	1.2kΩ	1/6W	±5%	1
R80	401 025 2305	Carbon	150kΩ	1/6W	±5%	1
R81	401 012 7009	Carbon	10kΩ	1/4W	±5%	1
R82	401 020 2003	Carbon	4.7kΩ	1/4W	±5%	1
R83	401 016 3809	Carbon	2.2kΩ	1/4W	±5%	1
R84	401 024 7004	Carbon	1kΩ	1/6W	±5%	1
R85	401 013 5301	Carbon	1.2kΩ	1/4W	±5%	1
R86	401 013 5301	Carbon	1.2kΩ	1/4W	±5%	1
R87	401 013 5301	Carbon	1.2kΩ	1/4W	±5%	1
R88	401 013 5301	Carbon	1.2kΩ	1/4W	±5%	1
R89	401 013 5301	Carbon	1.2kΩ	1/4W	±5%	1
R90	401 013 5301	Carbon	1.2kΩ	1/4W	±5%	1
R91	401 013 5301	Carbon	1.2kΩ	1/4W	±5%	1
R92	401 013 5301	Carbon	1.2kΩ	1/4W	±5%	1
R93	401 013 5301	Carbon	1.2kΩ	1/4W	±5%	1
R94	401 013 5301	Carbon	1.2kΩ	1/4W	±5%	1
R95	401 022 1905	Carbon	680Ω	1/4W	±5%	1
R96	401 012 7009	Carbon	10kΩ	1/4W	±5%	1
R97	401 012 7009	Carbon	10kΩ	1/4W	±5%	1
R98	401 013 5301	Carbon	1.2kΩ	1/4W	±5%	1
R99	401 013 5301	Carbon	1.2kΩ	1/4W	±5%	1
R100	401 022 4104	Carbon	68kΩ	1/4W	±5%	1
R101	401 022 4104	Carbon	68kΩ	1/4W	±5%	1
R102	401 022 4104	Carbon	68kΩ	1/4W	±5%	1
R103	401 022 4104	Carbon	68kΩ	1/4W	±5%	1
R104	401 022 4104	Carbon	68kΩ	1/4W	±5%	1
R105	401 022 4104	Carbon	68kΩ	1/4W	±5%	1
R106	401 022 4104	Carbon	68kΩ	1/4W	±5%	1
R107	401 022 4104	Carbon	68kΩ	1/4W	±5%	1
R108	401 022 4104	Carbon	68kΩ	1/4W	±5%	1
R109	401 022 4104	Carbon	68kΩ	1/4W	±5%	1
R110	401 022 4104	Carbon	68kΩ	1/4W	±5%	1
R112	401 012 4503	Carbon	100Ω	1/4W	±5%	1
R113	401 012 4503	Carbon	100Ω	1/4W	±5%	1
R114	401 012 4503	Carbon	100Ω	1/4W	±5%	1
R115	401 012 4503	Carbon	100Ω	1/4W	±5%	1
R116	401 012 5708	Carbon	1kΩ	1/4W	±5%	1
R117	401 021 3009	Carbon	5.6kΩ	1/4W	±5%	1
R118	401 012 7009	Carbon	10kΩ	1/4W	±5%	1
R119	401 016 4806	Carbon	22kΩ	1/4W	±5%	1
R120	401 062 1408	Oxide Metal Film	470Ω	1W	±5%	1
R121	401 012 7009	Carbon	10kΩ	1/4W	±5%	1
R122	401 024 7400	Carbon	10kΩ	1/6W	±5%	1
R123	401 013 6407	Carbon	12kΩ	1/4W	±5%	1
R124	401 014 5201	Carbon	15kΩ	1/4W	±5%	1
R125	401 024 7400	Carbon	10kΩ	1/6W	±5%	1
R126	401 024 7400	Carbon	10kΩ	1/6W	±5%	1
R127	4-2219-71390	Resistor (10kΩ x 11)				1
R128	401 023 0709	Carbon	82Ω	1/4W	±5%	1
R129	401 015 3800	Carbon	18kΩ	1/4W	±5%	1

VOLUME P.C.B. ASSY

86	141-0-1939-14700	Volume P.C.B. Assy				1
CN2	4-2359-76785	Connector 2P Assy				1
VR1	4-2229-74810	Volume (Approach, B-50kΩ)				1
R1	401 012 5708	Carbon	1kΩ	1/4W	±5%	1

POWER SWITCH P.C.B. ASSY

87	141-0-1939-14710	Power Switch P.C.B. Assy				1
CN9	4-2369-73673	Plug 4P				1
CN10	4-2369-22780	Plug 4P				1
SW19	⚠ 4-2319-78990	Push Switch 1 Key (Power)				1
C1	CC2-2-2500-ZG00C	Ceramic	0.0022μF	50V	+80,-20%	1
C2	CC2-2-2500-ZG00C	Ceramic	0.0022μF	50V	+80,-20%	1

REMOTE CONTROL P.C.B. ASSY

88	141-0-1939-14720	Remote Control P.C.B. Assy	1
CN10	4-2359-79374	Connector 4P Assy	1
CN11	4-2369-76010	Plug 5P	1

NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

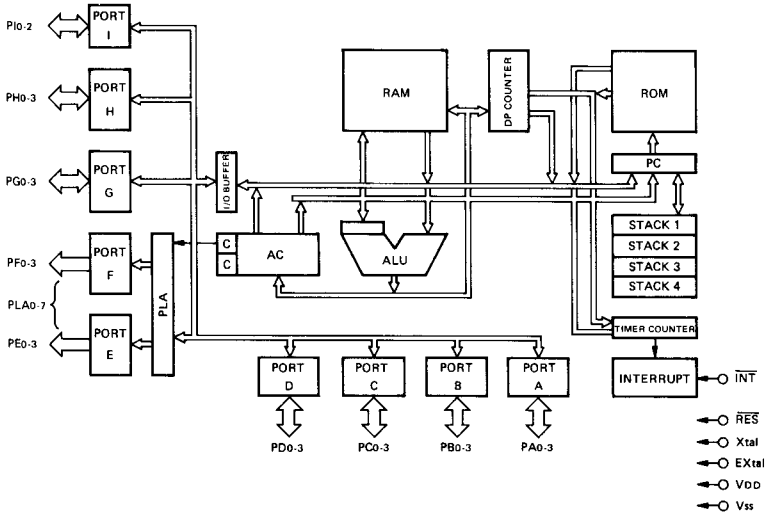
*** NOTE:**
When placing the MSM4049RS (4-2069-72530) to the **IC5**, use the 2.2 μF 50 V to the **C17**.

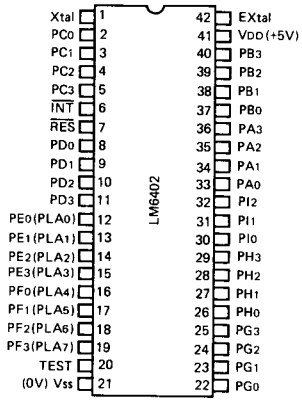
PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

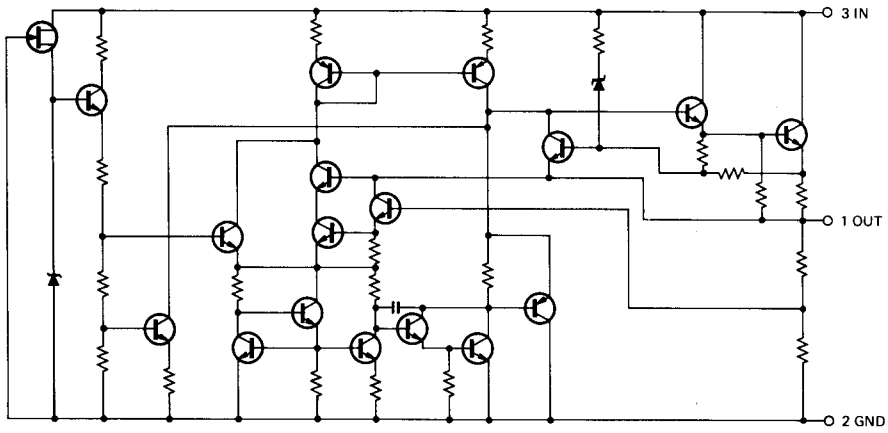
IC SIGNAL FLOW & EQUIVALENT CIRCUIT

CONTROL IC LM 6402 G

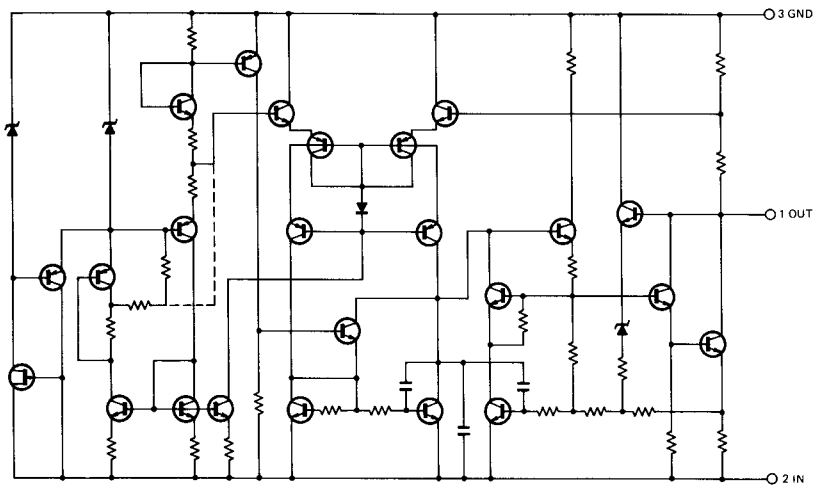




VOLTAGE REGULATOR IC NJM 7812

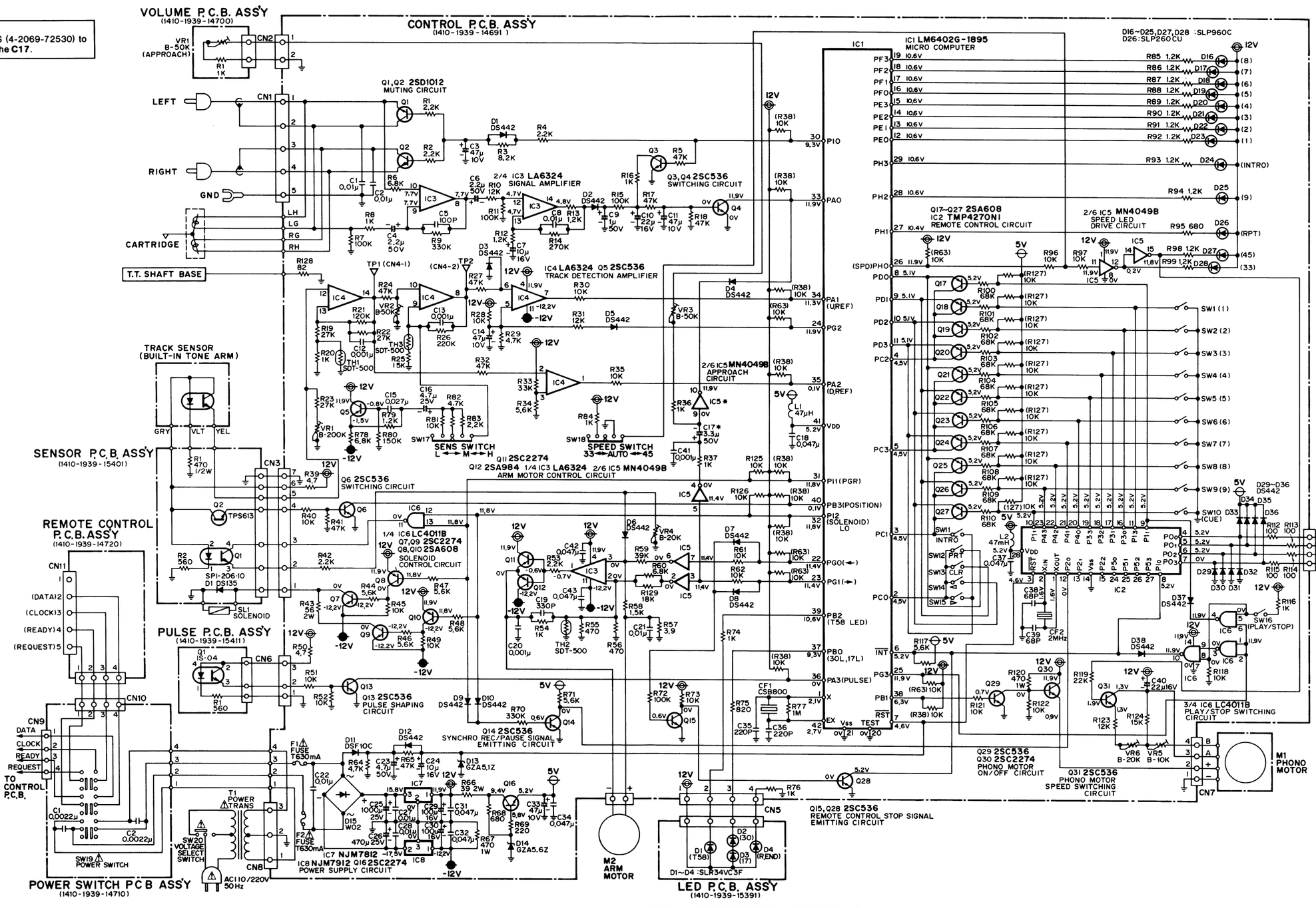


VOLTAGE REGULATOR IC NJM 7912



SCHEMATIC DIAGRAM

***NOTE:**
When placing the MSM4049RS (4-2069-72530) to the **IC5**, use the 2.2 μF 50 V to the **C17**.



No.	Name	Position	No.	Name	Position
SW1	1 Switch	OFF	SW11	INTRO Switch	OFF
SW2	2 Switch	OFF	SW12	REPEAT Switch	OFF
SW3	3 Switch	OFF	SW13	CLEAR Switch	OFF
SW4	4 Switch	OFF	SW14	(◁) Switch	OFF
SW5	5 Switch	OFF	SW15	(▷) Switch	OFF
SW6	6 Switch	OFF	SW16	PLAY/STOP Switch	OFF
SW7	7 Switch	OFF	SW17	SENSOR Switch	M
SW8	8 Switch	OFF	SW18	SPEED Switch	AUTO
SW9	9 Switch	OFF	SW19	POWER Switch	OFF
SW10	CUEING Switch	OFF	SW20	VOLTAGE SELECT Switch	220V

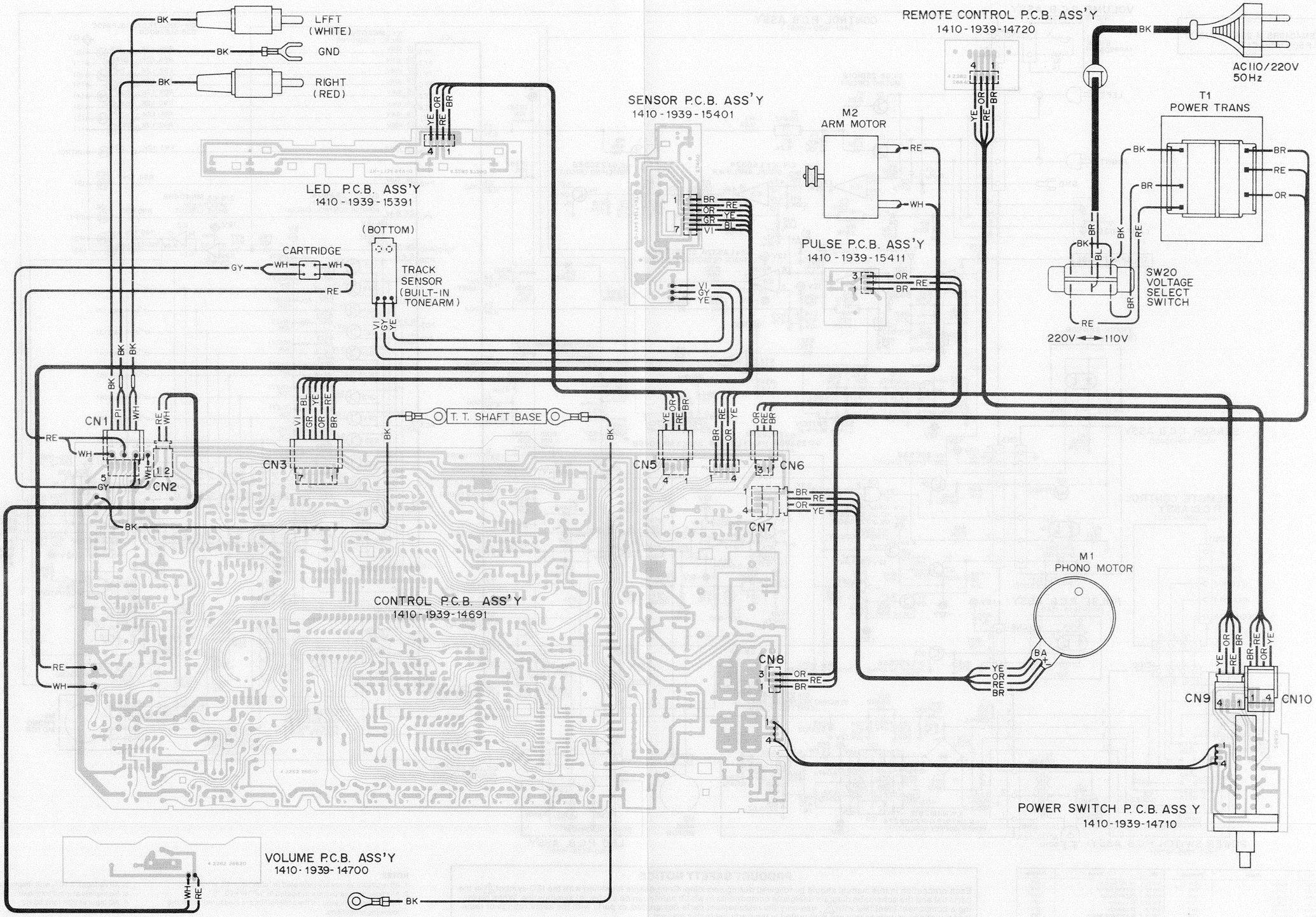
PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual.
Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

NOTES:
1. All resistors values are indicated in "ohm" (K=10^3, M=10^6).
2. All capacitors values are indicated in "μF" (P=10^{-12}).
3. All voltages indicated on the schematics are measured under the following conditions.
   a. Use a V.T.V.M.
   b. All voltages ±10 % with respect to chassis ground
   c. No signals at input terminals
   d. AC input at 220 volts 50 Hz
4. This is a basic schematic diagram.

Because Fisher products are subject to continuous improvement, Fisher Corporation reserves the right to make any changes or modifications without notice.

POINT TO POINT WIRING DIAGRAM



SERVICE MANUAL

FISHER

RANDOM ACCESS LINEAR TRACKING TURNTABLE

MT-891
(EUROPE)

134 094 42

This service manual is prepared for Model MT-891. As only the components in the chart below differ, refer to the service manual MT-890 (WM-16943) for other components.

Ref. No.	MT-890	MT-891	Description	Q'ty
	PACKAGE			
	141-6-1139-98321	141-6-1139-98330	Box Corrugate-Exp	1
	ACCESSORIES			
	142-6-4119-32944	142-6-4119-33416	Explanatory Booklet	1
	CABINET & CHASSIS			
	131-2-1310-34662	141-2-1449-77612	Name Plate	1
	141-6-4729-37686	– – – – –	Stylus Label	1
2	131-2-1601-85207	131-2-1601-85201	Knob Power	1
12	141-2-1449-73100	141-2-1449-73101	Plate Control	1
45	141-0-7519-05000	141-0-7519-04601	Shaft Turntable Complete	1
75	131-2-6107-31600	– – – – –	Plate Sever	1
76	⚠ 4-2312-01020	⚠ 4-2312-02650	Switch Slide (Voltage Select)	1

Add this sheet to Model MT-890 Service Manual (WM-16943).

REFERENCE No. WM-19686

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